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XXIII.—*Catalogue of the Pyralidæ of California, with descriptions of new Californian Pterophoridæ.*

BY A. S. PACKARD, JR.

Read January 6, 1873.

THIS catalogue of the Pyralid moths of the Pacific states is published more to show how extremely limited is our present knowledge of this family, as regards the region west of the Rocky Mountains, than to give a view of the group as developed in that part of the world. Neither Gueneé in his "Histoire Naturelle des Insects, Species général des Lépidoptères," Tome VIII, Deltoïdes et Pyralites (1854), nor Boisduval* in his writings on the Lepidoptera of California, mention any species of this family, and it is believed that, with the exception of *Botys fodinalis*, described by Mr. Lederer from California, the following descriptions are the first references to the Californian species of this interesting group.

For my material I am chiefly indebted to Mr. Henry Edwards, of San Francisco, to whose energy in collecting, the science of entomology is under so many obligations. A few specimens have been received from Mr. Junius Holleman of Goose Lake, near Fort Bidwell, Siskiyou County, Cal.

*Lépidoptères de la Californie (Annales Soc. Ent. France, Sér. 2, 1852, Tome 10 p. 275-324; sér. 3, 1855, Tome 3). Bull. p. 31.

See also Annals Soc. Ent. Belgique, Tome xii, 5, 1869.

Among those he sent are some extremely interesting Crambus-like forms, one with pectinated antennæ, too imperfectly preserved for description, but sufficiently so to indicate some remarkable types of this group of the family. Several interesting forms have been received from Mr. James Behrings.

An interesting fact in geographical distribution is the considerable extension given to the range of one of the probably cosmopolitan species of moths. I refer to the *Nomophila noctuella* (Schiff.). It has hitherto been reported by Guenée from different parts of Europe, Algeria, Caffraria, Bengal, Pondicherry, Brazil, and Philadelphia. It has also been known by myself to occur in New England and New York, and now it has been received from Oregon, near the Californian state boundary line, from Siskiyou Co., California, near the Oregon line, and from the vicinity of San Francisco. Occurring so far inland as the settlements about Fort Bidwell, Siskiyou County, and also the newly settled portions of Oregon, it may be inferred that this species has not been introduced by man, and that it is probably autochthonous where it has been observed, at least in America. A variable moth wherever it occurs, it varies in much the same manner in California as in Europe. Such cosmopolitan forms give rise to the suspicion that they are relics of a preceding geologic age, which is borne out by the fact that quite a gap separates it from its nearest allies.

Another point of interest is to ascertain what European features occur in the few species yet known of this family. The assemblage, so far as our rather scanty knowledge of this group may be depended upon, is allied as closely to the fauna of eastern North America as to Europe, as seen in the species of *Botys* and *Cataclysta*. In the group of *Pterophoridae* one species quite unlike any European one, so far as I am aware, has a very close ally in New England.

In the measurements hundredths of an inch are used, and instead of indicating the alar expanse, the length of one fore wing is given to secure greater exactitude.

Pempelia fenestrella, n. sp.—2 ♂ 4 ♀. In this species the fore wings are long and rather narrower than in the European *P. palumbella*, and the large, broad palpi, though of much the same form, are porrected instead of ascending; but in venation and the structure of the antennæ it agrees with the European species, and *Pempelia ovalis* from New England, in which the wings are much shorter. Body and wings cinereous, or granite-gray, the abdomen and legs being paler, and concolorous with the legs and hind wings, which are of the usual glistening hue of the genus. Fore wings of the same ash hue as the thorax, speckled with black scales. Two black dots at the base of the wing below the median vein. Beyond on the submedian vein is a longitudinal, blackish, inconspicuous stripe edged on each side with dull ochreous. Above it is a dark point on the median and subcostal veins, with whitish scales surrounding the middle dot, but there are no raised scales on the wing. Just beyond the middle of the wing are two, prominent, squarish, black spots, one on the median the other on the subcostal vein. A distinct, white, submarginal line, parallel with the outer edge and bordered internally with black scales, especially marked on the costa. The space between this line and the outer edge is filled in with deep, ochreous, longitudinal bars, alternating with black streaks, of which the costal one is the widest and shortest. These bars do not quite reach the distinct, black line at the edge. Fringe ash, twice lineated with whitish. Beneath a pale, whitish, straight, submarginal line, edged within towards the costa with dark ash.

Length of body ♂, .45, ♀, .45 of an inch; fore wing ♂, .43, ♀, .44 of an inch. California (Edwards).

Easily recognized by the very distinct, yellow and black bars; the prominent, twin, squarish spots, and the distinct, white, once sinuate, whitish, submarginal line.

Pempelia leoninella, n. sp.—2 ♂ 1 ♀. Antennæ and palpi as in *P. fenestrella*, but the fore wings are more produced towards the apex, the outer edge being more oblique. Body and base of fore wings tawny, the thorax being clay-yellow; palpi clear ash. Basal third of fore wings tawny yellow, somewhat orange colored externally, outer edge of this colored portion directed regularly, obliquely outwards from the costa to the inner edge, with three, black, venular dots along this oblique border. In the ash space beyond is a distinct, dark, discal dot, and the veins are black. A broad, marginal, tawny yellow band, the sides even and parallel; the costa, however, is cinereous to the apex. A marginal black line, and a fine dark line in the cinereous fringe near the base. Hind wings of the usual hue. Abdomen luteous. Beneath fore wings smoky, dusky towards the costa; a pale, costal streak, not forming a submarginal, pale line as in *P. fenestrella*. Legs dark ashen, whitish at ends of joints.

Length of body ♂, .50, ♀, .45 of an inch; of fore wing ♂, .46, ♀, .45 of an inch. California (Edwards).

Differs from *P. fenestrella* in the more acute primaries, the tawny base of the wings and the conspicuous, marginal, broad, tawny band, and the want of the twin squarish spots in the middle of the wing.

Nomophila noctuella (Schiff.) (*Stenopteryx hybridalis* Hübn.) After comparing four specimens from Oregon (collected by Mr. J. Holleman) and ten from California (coll. Edwards) with one from New York (Angus) and three from New England, and four from Europe, I can find no valid differences. The largest suite, from California, vary in the same manner as in the European specimens. One form is dark with the markings very distinct, the other is paler, with the discal dot and reniform spot partially obsolete, and the lines indistinct, while the whole moth is somewhat tawny. The variation in size is much as in the European specimens. One specimen was collected by Mr. J. Holleman in Siskiyou Co., Cal.

Scopula occidentalis, n. sp.—2♂ 2♀. In this species the outer edge of the fore wings is much more oblique, and the costa much more rounded at the apex than in the European *S. inquinatalis*, otherwise structurally it is closely allied. Stone gray; head and palpi gray; orbits white; head and palpi white beneath. Fore wings uniform stone gray, crossed by two, distinct, wavy, dark lines; inner line shaded with whitish internally, with a large angle projecting outwards just below the median vein, and another inwards on the submedian. Discal and reniform spots very distinct, black. Outer line finely scalloped, curved outwards from the costa to the fourth median venule, where the line forms a sinus, and angulated outwards on the submedian vein; the line broadly shaded externally with whitish. A marginal row of black dots. Fringe concolorous with the wing. Hind wings dusky, fringe pale; an obscure, short, dusky line beyond the middle. Beneath, much paler than above, dot and reniform line distinct, outer line faintly reproduced, as also the marginal dots. A short, faint line on hind wings. Abdomen dark above. Legs whitish.

Length of body ♂, .44, ♀, .40 of an inch; of fore wing ♂, .44, ♀, .42 of an inch. California (Edwards and Behrens).

The lines and spots are very distinct on the fore wings, and in some specimens the space between the two lines is slightly darker than the rest of the wing.

Botys Californicatis, n. sp.—1 ♂. This species belongs to the *Rhodaria* group, having broad, triangular, acute palpi, and being of small size, with the hind tibiae rather swollen. Body and wings light brick red, with a deep, ochreous tinge. Orbits white, becoming red towards the front, palpi grayish-red, white along the under edge; head beneath white. Fore wings ochreous red, a basal, fine, regularly curved, wavy dark line; an outer, similar line, straight on the costa and inner edge, curved outwards and wavy between the subcostal vein and fourth median venule, there being four distinct scallops in this curved portion. Edge of wing broadly margined with dull, leaden, reddish-brown; fringe reddish-brown on basal half, much paler beyond. Hind wings marked much as primaries, being reddish, and bordered widely with dull, leaden, reddish-

brown; base of wing powdered with dark scales, and the outer, curved, dark line present, diffusely shaded within. Beneath, paler than above, a large, dark, discal patch; costal and outer margin of wing dull, leaden brown; hind wings with a conspicuous, single, definite line, not shaded within, outer edge bordered widely with dusky brown. Fringe as in primaries. Abdomen reddish, with whitish, conspicuous lines covering hinder edge.

Length of body ?; of fore wing, .28 of an inch. California (Edwards).

Botys unifascialis, n. sp.—2♂. Of an uniform, stone-gray color, with a dark olive greenish hue. Head and thorax rather darker than the fore wings. The only mark on the fore wings is a submarginal, broad, sinuous diffuse, pale band, which is curved outwards on the upper half and inwards on the lower. Fringe concolorous with the wings. Hind wings paler than primaries, with a slightly marked, median, broad, diffuse band; near edge of wing whitish; extreme edge gray. Fringe white. Beneath fore wings dusky with no markings, but paler on the inner, outer and costal edges. Hind wings cream white. Fore legs slightly grayish; hind legs white.

Length of body, .55 of an inch; of fore wing, .55 of an inch. California (Edwards).

This species very closely resembles an eastern species,* but differs in the pale band on the hind wings, while both pairs are rather more acute on the apex.

Botys profundalis, n. sp.—2♂ 3♀. This is a small form, with the apex of fore wings subacute, rectangular, the outer edge being less oblique than in any other of the species described, while the palpi are rather longer and larger. Orbits white on vertex and on each side of the antennæ. Deep ochreous-brown, body white beneath; palpi light brown, white on the under side. Fore wings deep ochreous-brown; the inner line angulated outwards broadly on the median vein and inwards on the submedian. A large, round, discal dot and dumb-bell-shaped, reniform spot, these spots more conspicuous than usual. The outer line is dark

**Botys subolivalis*, n. sp. This species belongs to a distinct group, as far as I can judge by the figures, apparently including the European *Botys alpinalis* and its variety *ablutalis* figured by Herrich Schaeffer in his "Systematische Bearbeitung der Schmetterlinge von Europa," etc. The fore wings are rather broad, subtriangular, costa straight, rounded towards the apex; outer edge not very oblique; hind wings broader than usual. It is of a peculiar stone gray, with a slight olive-green tinge. There are no markings on the fore wings, except a faint pale sinuate broad shade crossing the outer third of the wing; it is directed outwards on the costa curved outwards in the middle of the wing, and is straight below the 4th median venule. Fringe slightly darker than the wing. Hind wings dark smoky; fringe whitish, smoky at base. Beneath clear smoky ash on the fore wings, white on the hind wings, with a single broad diffuse, much curved, dark band in the middle, and slightly dusted with cinereous scales near the outer edge. Length of body .40 of an inch; of fore wing .50 of an inch Brunswick, Maine, in grass uplands; Orono, Maine, July (Packard). It cannot be confounded with any other species of *Botys* I have yet seen.

filiform, oblique, with its general course parallel with the outer edge, but inwards making an elbow just below the costa, while just below the median vein, the line is deeply curved in, making a very deep sinus, with parallel sides, the bottom of the sinus being parallel with the inner edge of the reniform spot. A marginal row of conspicuous, black dots. Fringe ash color, with a dusky line at the base. Hind wings pale, the discal dot small, inconspicuous; the outer line with a small, deep sinus behind the middle of the wing, the line much curved in front of this sinus. A row of black dots along the edge. Beneath pale, with the lines and spots very distinctly reproduced, the fore wings not dusky as usual in some specimens. Legs whitish.

Length of body ♂, .42, ♀, .40-.45 of an inch; of fore wing ♂, .42, ♀, .40-.46 of an inch. California (Edwards).

This apparently common species may at once be known by the unusually deep sinus of the outer line. All the lines and spots are very distinct, especially on the hind wings. One female, the best preserved of the lot, is bright florid ochreous, while the best preserved male is of a pale mouse color, and the fore wings are dusky beneath.

Botys mustelinæ, n. sp.—2 ♀. Body rather stont, with the fore wings rather narrow, much produced towards the apex, the outer edge being a little more oblique than usual. Body and wings of a uniform, pale, cloudy, sable-brown. Orbits just in front of the antennæ and upper side of the palpi whitish. Fore wings with an oblique, dusky line, extending from the costa outwards to the inner edge, being curved outwards a little in the median space, and inwards slightly on the submedian space. An obscure, dusky, large, round, discal spot and large reniform spot. Outer dusky line finely scalloped, curved around gradually from the costa to the fourth median venule, where it is bent at right angles inwards, and the lower, wider, dusky portion begins half way between the end of the upper, scalloped division, and the origin of the fourth median venule; this portion is twice waved. Outer edge of wing a little darker than the middle and the costa is also darker. Hind wings slightly paler than primaries. A faint, discal dot, and an outer dusky shade, dislocated, or rather with a deep sinus below the middle of the wing. A marginal, fine, dark line. Fringe concolorous with the wing. Abdominal segments edged with whitish. Beneath, somewhat paler with the discal and reniform spots faintly reproduced; the outer line appears as a finely, deeply scalloped line, the scallops filled in with a much paler tint; the border of the wing is finely dusted with fine, grayish scales; fringe with a slightly marked, fine, median, pale line. Hind wings with an acutely zigzag, outer line, and a short, dusky, diffuse line in the middle of the wing, not reaching the costa or hind edge. Body beneath and legs paler, almost whitish.

Length of body, .50 of an inch; of fore wing, .50 of an inch. California (Edwards).

The distinguishing marks of this dull colored species is the rectangu-

larly bent, outer, dusky, scalloped line, forming a large, reëntering angle just under the reniform spot; the apex of the fore wings is also rather more produced than usual.

Botys fodinalis Lederer—2♂ 1♀. This is a species of the typical form of the genus, with the fore wings moderately broad, the apex subacute, the outer edge not very oblique. Head, thorax and fore wings pale sable-brown. Palpi entirely sable-brown; orbits in front of antennæ white. Fore wings with a faint, dark, basal line, incurved on the subcostal space, bent outwards just behind the median vein, then following a straight course and ending on the inner third of the inner edge. A small, dark, discal dot, and small, rounded, reniform spot at a considerable distance from it. The outer, dark line is bent at right angles inwards, the portion below the fourth median vein is parallel with the inner line; the portion above is parallel to the outer edge of the wing, slightly sinuate in its course and angulated inwards on the costa. Hind wings pale, faded whitish, with a faint, ochreous tinge in the middle. A dark, conspicuous, discal dot; a single line curved in a semicircle in the middle of the wing; edge of wing shaded broadly with blackish, fading out towards the inner edge, with a narrow, pale, interrupted line beneath the fringe and dark shade. Fringe concolorous with the wings. Abdomen, legs and body beneath pale whitish, ochreous. Beneath fore wings dusky, hind wings whitish, with the dots, outer lines and marginal shade reproduced. Fringe a little paler than the wings, that on fore wings darker than on hind wings. Agrees with Lederer's figure, Wiener Ent. Monats. vii. Pl. 8, fig. 9.

Length of body ♂, .55 of an inch, ♀ (abdomen broken off); of fore wing ♂, .55, ♀, .43 of an inch. California (Edwards).

This dull colored species differs from the others in the obscurity of its markings, and in the pale hind wings with the broad, dark border. One of the two males is nearly twice the size of the single female, but a large suite of specimens may show that the equality of the sexes is as usual. The male wants the outer, much curved line, present on the hind wings of the other sex. There is a very faint, reddish tinge on the fore wings of one of the males.

Botys semirubralis, n. sp.—1♂. A species of the normal form, with palpi of the usual form and length. The apex of the fore wings is rather blunt, but the hind wings are of the usual form. Body and basal half of fore wings dull, dark, sable-brown, including the palpi and legs. Fore wings dull sable-brown, immaeulate to beyond the middle, except a small, round, brown, discal dot. Outer portion of the wing dull, brick red, with a little paler, diffuse, slight, submarginal shade. Fringe dull, reddish-brown. Hind wings dull, sable-brown, with a vinous tinge; fringe pale reddish wine color. Beneath, fore wings dusky in the middle portion, becoming reddish-brown on the costa, and pale, faded reddish on the outer edge of the wing. Hind wings pale, faded brick red on costal region; fringe of the same color, the inner region of the wing paler.

Length of body, .45 of an inch; of fore wing, .50 of an inch. California (Edwards).

This species may readily be distinguished by the blunt apex and the dull brick red outer half of the fore wings, contrasting with the dull umber or sable-brown ground color.

Botys perrubralis, n. sp.—2 ♂ 1 ♀. A species of the usual form. Body and fore wings deep ochreous-yellow, with bright red scales. Palpi reddish-brown externally; tongue white; head reddish-brown above, beneath white; patagia red. Fore wings bright ochreous-yellow washed with red at the base; base of costa reddish; a little beyond a twice zigzag, red line, bent inwards on the median vein, and outwards on the submedian. A distinct, red, discal spot, a few scattered red scales run across the wing below, with a fine, red line parallel with the outer edge and running from the inner edge to the red portion and ending on the median vein. Outer third of the wing bright red, enclosing a large, roundish, yellow spot on the outer fourth of the costa. A faint, yellowish shade towards the apex, ending in a series of faint, marginal spots; the inside of the red portion is inclined to be dusky. Fringe vermillion red. Abdomen and hind wings glistening whitish, the latter with a small, black, discal dot; a broad, submarginal shade, not reaching the costal region, while the fringe is reddish, often faded white. Legs whitish. Beneath, both wings whitish, edge of wings dusky, instead of red (sometimes reddish); costa dark brown; fringe pale vermillion. Hind wings as above. Body silvery cream-white beneath.

Length of body ♂, .45, ♀, .50 of an inch; of fore wing ♂, .48, ♀, .54 of an inch. California (Edwards and Behrens).

The bright red markings and outer edge will readily characterize this species.

Eromene Californicalis, n. sp.—3 ♂. This beautiful species is closely allied structurally to *E. bella* of southern Europe, but the wings are a little longer and narrower, and the palpi are rather longer. Body and wings dull cream color; head and thorax with a pale ashen hue. Fore wings dusted with scattered brown scales; basal half of the wing immaculate, just beyond the middle a slightly curved, narrow, silvery line crosses the wing and is bordered widely on each side with yellow ochreous. Beyond is a clear space, but very finely dusted with fine, brown scales. The usual submarginal, once broadly angulated, white line edged with deep ochreous; a short, oblique, white line parallel to the costal portion of the longer line, which cuts off the apex. The marginal, oblong, black, conspicuous dots, ending in bright, shining, metallic spots are arranged as in *E. bella*, just reaching the angle of the white line. Fringe pale, with two, fine, dark lines. Hind wings whitish, immaculate. Beneath, a little dusky on the fore wings, with eight or nine black dots on outer edge. Hind wings whitish.

Length of body, .41 of an inch; of fore wings, .41 of an inch. California (Edwards).

A beautiful moth readily recognized by the nine black spots on the lower part of the outer edge of the fore wings ending in bright, metallic points.

Calaclysta metalliferalis, n. sp.—1 ♂ 3 ♀. Wings rather broad; hind wings deeply notched. Pale brown with an ochreous tinge; thorax ochreous. Fore wings ochreous brown, an obliquely straight white basal line; a parallel similar line beyond, bent on the costa, enclosing a broad pale brownish band; a broad white band, diffuse externally, crosses the wing, and is limited externally by a filiform brown minutely zigzag line, which is much curved above the fourth median venule, and just below sends an acute angle inwards. (This line is more distinct in rubbed specimens). A marginal white line very diffuse on the inner side; beyond it towards the costal, a narrow ochreous brown line. Still beyond are two or three very fine dislocated hair lines at the base of fringe, which is pale brown, consisting of brownish and whitish scales. Hind wings whitish at base, a few dark long spatulate scales along the hinder portion of the wing. A dark spot within the middle of the inner margin of the wing. An outer curved waved brown line, edge of wing brown. The white band below the notch enclosing five conspicuous black dots, with five black square spots beyond alternating with bright shining metallic points. Abdomen pale brown, a few ochreous scales at base; segments whitish on hinder edge. Legs whitish silvery. Wings beneath dull ash brown, a whitish discal streak, the outer line common to both wings, dusky and obscure; the marginal white line distinct towards the costa, but the other lines not reproduced. Black and metallic points as above.

Length of body, ♂, .34 of an inch; ♀, .26 of an inch; of fore wing, ♂, .33; ♀, .33 of an inch. California (Edwards).

This species has the conspicuous, black and steel blue metallic spots on the hind wings, as in our eastern, and in the Brazilian species, described by Guenée. It does not follow the analogy of the European *C. lemnalis*, in which, as Guenée observes, the black and metallic points are represented by simple white points.

Pyralis farinalis Linn. Two specimens from California, collected by Mr. Edwards, do not differ from New England examples.

FAM. **Pterophoridae.**

Pterophorus pergracilidactylus. n. sp.—1 ♂. A very slender species, with a long body, very long legs, and the wings unusually long and narrow. Body and wings ash brown. Head whitish on vertex, reddish brown in front; palpi reddish brown with some white scales. Antennæ whitish ringed with brown. Thorax brownish above, becoming whitish on the sides and extending along the abdomen; a small dark irregular dot on the front end of each abdominal ring; brown on the sides with scattered dark scales; beneath whitish with numerous dark scales, with a pair of large dark spots usually meeting beneath. Fore wings very narrow, split widely apart the usual depth; the costal branch narrow and curved; the hinder

branch nearly twice as broad as the costal, the extremity falcate and very acute. The wing is reddish ash brown, paler on the costa where are numerous white scales, with a few blackish ones. A black dash at the fork, a few black scales at the tip of both branches, the posterior edge of the hinder branch whitish. Fringe mouse colored. Hind wings with three long narrow not spatulate branches, the two anterior uniting on the basal third of the wing by a distinct web. Entire wing and fringe mouse colored. Legs white ringed with brown.

Length of body .45 of an inch; fore wing .55 of an inch. California, (Edwards).

This interesting form is allied to the European *P. pterodactylus*, but the wings are still narrower and the legs longer, but it is still more closely allied to and represents our eastern *Pt. cinereidactylus* of Fitch, a specimen of which is in the museum of the Peabody Academy of Science, collected by Mr. F. W. Putnam, at Salem, Mass., Sept. 26th. In the latter species the hinder division of the fore wing is more triangular, less acutely pointed than in the Californian species, and the markings on this division differ a little.

Pterophorus sulphureodactylus, n. sp.—5♂ 3♀. Fore wings divided on outer third, the two divisions rather wide, the costal one reaching considerably beyond the hinder, and ending in a very acute point; the hinder division broad halberd-shaped. Body and wings sulphur yellow, legs a little paler, tarsi whitish. Fore wings unspotted, clear sulphur yellow, except a slight brown costal streak on the outer fourth of the wing. A minute brown dot at the bottom of the fork. Hind wings pale mouse color, under side of fore wings deep mouse color, costa yellow, with some brown scales, especially towards the base. Fringe pale yellow. Two anterior divisions of hind wings mouse colored beneath, 3d yellow beneath, with fringe yellowish at base, beyond pale mouse colored. Palpi whitish yellow, streaked with ochreous scales; legs streaked with brown scales.

Length of body .42 of an inch; fore wings .50 of an inch. Goose Lake, Siskiyou Co., California, July 26, 27. (J. Holleman).

This handsome bright sulphur yellow species is allied to the European *Pt. osteodactylus*. I know of no American species related to it.

Pterophorus cervinidactylus, n. sp.—1♂. Head with an unusually long and large tuft of scales projecting slightly beyond the second joint of the palpi. Wings shorter than usual, and broad in proportion; the split in the primaries quite short, the costal division very broad, the apex triangular; the apex of hinder division triangular, the outer edge very oblique, the hindmost division of the hind wings shorter and narrower than usual. Body and wings fawn color; vertex of head whitish fawn; frontal tuft rather darker. Antennæ annulated with whitish fawn and brown. Palpi brownish. Fore wings fawn brown; paler, subochreous along the inner edge, with a concolorous patch on the costa a little within the apex; a black dot just above and near the end of the split. Fringe concolorous

with the wing. Hind wings with the first division spoon-shaped at the end; third very short and blunt at end; entire wings fawn color, with no dark brown scales in the fringe on third division. Legs whitish-brown, hind pair as far as middle of tibiæ, beyond brown, spurs paler. Beneath uniformly brown, thickly dusted with paler scales; with a large pale cloud on the costal division of primaries.

Length of body .48; of fore wing .43 of an inch. California (Edwards). This species may at once be known by its hind short wings, its uniform fawn color, and by the faded ochreous cloud near the apex of costal division of fore wings. It is remotely allied to *Pt. pterodactylus* of Europe, but differs decidedly in the costal divisions of the fore wings, being much more acutely produced. Besides these I have received, through Mr. Edwards, two other species of this genus from California, but too imperfectly preserved for description.

XXIV.—*Notes on some Pyralidæ from New England, with Remarks on the Labrador Species of this Family.*

By A. S. PACKARD, JR.

Read January 6, 1873.

AMONG the specimens of this group, in the Museum of the Peabody Academy of Science, are several species which occur frequently in New England, and are so well marked that I have ventured to describe them, without waiting for more material from other localities.

I am unable, so far in my studies on this group, to find any valid characters separating the "Phyeidæ" from the family Pyralidæ, whether we regard the larval or imaginal characters. They seem to me to be intimately related on one hand to the lower Pyralids, such as *Botys* and *Scopula*, and on the other to the Crambi. Certainly the "Phyeidæ" should not rank as a family, but take their place as a subordinate group.

Acrobasis rubrifasciella, n. sp.—8 ♂ 7 ♀. Antennæ of ♂ with the usual tuft on basal joint; the palpi slender, pointed, ascending vertically. Body and fore wings slate-ash, glistening; thorax tinged with reddish-brown,

and with the head giving off faint metallic colors; palpi blackish on the outside. Fore wings rather broad; just within the basal third a straight line of raised scales, extending from the inner edge and stopping short of the subcostal vein, conspicuously black externally, concolorous with the wing within; the black line bordered externally with bright vermilion (sometimes wanting), which usually reaches the costal edge. Base of wing slightly paler than middle of the wing. A light, triangular, paler shade in the costal region of the middle of the wing, enclosing two small, conspicuous, twin black dots. A submarginal faint, pale, narrow line curving outward in the middle and with four or five acute scallops. Fringe concolorous with the rest of the wing. Hind wings pale, glistening, cinereous. Beneath, fore wings quite dusky, with no markings; hind wings much paler, growing darker towards the costa. Legs dark ash, paler at the ends of the joints, especially the hind tibiæ, which have a whitish band around them; hind legs whitish within.

Length of body ♂, .40, ♀, .40 of an inch; of fore wing ♂, .38-.40, ♀, .40 of an inch. Orono, Maine. (Packard.)

This species is at once recognized by the broad bright-red transverse stripe just within the middle of the wing. This stripe varies much, being sometimes not present, at others not reaching the costal edge. In one additional specimen from Maine, the fore wing has scattered reddish scales at base and beyond the middle, while the dark transverse stripe is wanting, and the red portion forms a broad transverse bright-red band. The larva lives in June and early in July between the leaves of the alder, where it makes a horn shaped case of black cylindrical pellets of excrement, arranged regularly in circles, the additions being made around the mouth of the case. The case is about an inch and a half long; its mouth a quarter of an inch in diameter. Within it is densely lined with white silk. The pupa is of the usual color, mahogany brown, the end of the abdomen rounded, with six hairs projecting from a transverse supraanal projecting ridge. On each abdominal segment is a dorsal dusky transverse stripe, widest on the basal segment. The larva was not described in my notes. The pupa state lasts about two weeks, the moth which I reared appearing July 24th, the larva having been found July 6th.

The Museum of the Peabody Academy of Science also contains ten specimens of this moth reared by Mr. J. H. Emerton. The larvæ were found feeding on the Sweet Fern (*Comptonia asplenifolia* Ait.), July 7, 1866, at Hamilton, Mass., the moth appearing July 20th. The case is quite different in form from that previously described, being regularly oval cylindrical; .55 inch long and .35 inch in diameter. It is constructed in the same manner as those found on the alder. This striking difference in the form of the case may possibly be due to the difference in the form of the leaves of the food plant, the large broad leaves of the alder inducing the larva to build a horn-like, much elongated case; while the narrow smaller leaves of the Sweet Fern may have led to the formation of a short, oval case. These differences are such as we would ordin-

arily regard as specific, but neither do the pupæ or adults reared from the two plants differ appreciably.

Myelois albiplagiata, n. sp.—2 ♂. Body long and slender, palpi large and quite long, wings long, with the outer edge of primaries unusually oblique. Dull cream or whitish buff, head and palpi whitish buff. Fore wings pale buff color with a single long broad white stripe extending from the base of costa to the apex, the extreme outer $\frac{1}{4}$ of costa being buff; lower edge of the white band slightly dusky, and the wing along the middle is deeper buff than along the inner margin. Fringe a little paler than the wing. Hind wings whitish. Abdomen white. Beneath both wings are uniformly pale whitish buff. Body and legs of an intenser white.

Length of body, .57 of an inch; of fore wing .55 of an inch. New Hampshire, May and June (C. A. Walker).

This is quite different from *Myelois grossulariæ* Pack. (described in the "Guide to the Study of Insects," page 331, under the name *Pempelia grossulariæ*), and which, as suggested by Prof. P. C. Zeller, may prove on comparison to be identical with the European *Myelois convolutella*, Hübner. (See Entom. Zeitung Stettin 1871, p. 177) which preys on the gooseberry. The present species differs much from *M. grossulariæ* in having a longer body and wings, and much larger palpi; and in the style of markings. It may be at once known by the single long broad white line along the costal edge of the fore wings.

Pempelia ovalis, n. sp. 1 ♂. Palpi large and broad; antennæ tufted at base as usual; fore wings oblong, not very long, outer edge less oblique than usual. Body and fore wings ash, being covered with whitish and brown scales. Fore wings with a short curved dark line at base on the median vein. On inner third of wing a very broad brown band, directed obliquely outward from the costa to the inner edge, and enclosing a large distinct, regularly oval (longitudinal), ochreous spot between the median and submedian veins. Two obscure black discal points situated as usual; the outer one is enclosed in a dusky shade crossing the wing obliquely and limited beyond by the usual submarginal white zigzag line; this line is curved inward below the costa; from the middle of the wing to the inner margin it is exactly parallel to the outer edge, terminating in an angle directed outwards. Between this line and the edge is a series of dusky bars, the interspaces cinereous. A marginal black line. Fringe cinereous. Hind wings pale smoky. Beneath fore wings dusky. A whitish costal spot near the apex, but no line. Hind wings slightly paler. Abdomen concolorous with the hind wings. Legs dull ash ringed with whitish.

Length of body .40 of an inch; of fore wing .40 of an inch. Maine, (Packard).

Easily known by the oval ochreous spot on the inner third of the fore wings.

Nephoteryx latifasciatella, n. sp.—1 ♀. Of the usual cinereous color. Fore wings rather oblong, the outer edge being less oblique than in *N. Ed-*

mandsii Pack. and other allied species; base of wing pale whitish ash, beyond a broad dark shade crosses the wing, limited externally by a white distinct zigzag line which is directed obliquely outward towards the inner edge; the line has an acute narrow point running inwards on the median vein, and a broader angle directed inwards on the submedian vein, the line directed outwards at its termination on the inner edge. A costal dark shade on the outer edge of this line. In the middle of, and extending across, the shade is a long ochreous spot. The two discal black dots are more obscure than usual. The submarginal white line is very distinct, consisting of three scallops, the middle one forming a grand curve extending from the subcostal vein around to the submedian, the curve is well rounded not angulated as in *N. Edmandsii*. This line has a dark shade on both sides, distinctly on the costa. A marginal row of distinct black dots. Fringe concolorous with the rest of the wing. Hind wings of the usual shade. Fore wings dusky beneath, with a costal submarginal pale line. Legs cinereous, hind tibiæ with a dark ring, tarsi ringed with whitish.

Length of body .35 of an inch; of fore wing .38 of an inch. Maine, (Packard).

This species may be known by the broad dusky shade on the inner third of the fore wings, enclosing an ochreous patch. It is of about the same size as *N. Edmandsii*.

Nephoteryx roseatella, n. sp.—2 ♂. With the same cut of the wings and almost exactly repeating the coloration of the European *Pempelia semirubella*, it has all the structural characters of *Nephoteryx*. The palpi are larger and less ascending than usual; antennæ without the tuft of scales with short broad joints, well ciliated beneath. Front with longer scales, than usual. Head and palpi reddish. Costa of fore wings conspicuously white, the band not reaching the apex, the rest of the wing dull roseate; inner edge whitish, the band not reaching the inner angle. Hind wings whitish. Beneath fore wings a little dusky; hind wings same as above. Two hind pairs of legs reddish externally.

Length of fore wing .37 of an inch. Dorchester, Mass. (F. G. Sanborn).

In one specimen the roseate color on the wings has apparently faded out into a pale drab, but the head is red. Though the antennæ are without the usual tuft of scales, and the palpi are longer than usual, I should judge that it was a *Nephoteryx*.

REMARKS ON CERTAIN LABRADOR PYRALIDÆ.

In his Beiträge zur Schmetterlings Fauna von Labrador (Entomologischer Zeitung, Stettin, 1870, p. 371), Herr H. B. Möschler makes some interesting remarks on the moths described by American writers from Labrador. As soon as I

can obtain specimens from Europe with which to compare the species I have described as new, I shall give the results of the comparison and refer to Herr Möschler's valuable remarks.

Botys inquinitalis Zeller. Having received two specimens of this species from Lapland, through the kindness of Dr. Staudinger, and observed how much the two specimens differ from each other, I am disposed, with Dr. Staudinger (Catalog., etc.) and Herr Möschler, to refer my *Scopula glacialis* (l. c. 52) to the above species.

My specimens differ from the two others, in being paler in the middle of the fore wings, with the outer line consequently much more distinct. On the under side the same line is repeated with more distinctness, while the five black costal spots are smaller and consequently farther apart than in the Lapland examples. Otherwise the species agree with those from Lapland.

Pempelia fusca (Haworth). Möschler regards my *Eudorea? frigidella* (Proc. Bost. Soc. Nat. Hist., 1866, p. 53) as identical with *E. centuriella* S. V. I fear Herr Möschler has been misled by my doubtful reference of this species to *Eudorea*. Having since received four specimens from Lapland and Iceland, of *Pempelia fusca* (Haworth), I find that my specimens belong undoubtedly to that species. I have also specimens from Orono, Augusta and Brunswick, Maine, captured in July and August. These differ in no respect from the Labrador and European examples.

Scoparia albisinuatella (*Eudorea? albisinuatella* Pack. l. c.). As regards the identity of this form with *S. centuriella*, I should hesitate to decide until I have specimens from Europe with which to compare my example.

